

FAST SET MATERIAL PROPORTIONER**TECHNICAL FIELD**

This application claims the benefit of US Application serial number 60/423,342,
5 filed November 1, 2002.

BACKGROUND ART

Plural component proportioners for the mixing of materials such as polyureas and
other foams are well known. Such devices have traditionally been simple mechanical
10 proportioners or else complicated and heavy hydraulic powered units. While electrically
operated units such as that shown in US Pat. No. 3,196,802 have been used to proportion
plural component materials, such are not designed for fast setting materials of the type
mentioned which require precise control of both ratio and pressure.

15 DISCLOSURE OF THE INVENTION

It is therefore an object of this invention to provide a proportioner which is
electrically powered, can be easily manufactured and serviced is easily transported and
capable of precise metering of the two components.

Towards this end, the proportioner has a variable speed controlled DC motor having a gearbox and crankshaft at either end which are connected to reciprocating piston pumps. Such motors, gearboxes and cranks are well known for use in electrically powered airless paint sprayers such as those sold by the assignee of the instant invention under the trademark ULTRA. The outputs of the two pumps are fed to a manifold where the pressure of each output is measured. The user sets a setpoint pressure (e.g. 1000 psi) and the controller then compares the pressures of the first and second components (typically designated as the catalyst or A component and the resin or B component) and controls the higher of the two relative to the setpoint. Most materials today are designed for 1:1 ratios, that is, equal amounts of each component. Because of variations in viscosity and temperature, even though equal amounts of each component will be pumped (for mixing at the spray gun or other applicator) the pressure might be higher on one side or the other. Thus the controller continually compares the pressures and regulates the higher one to the setpoint.

Ratio assurance is monitored by continuing to look at both output pressures. If one side falls below a predetermined percentage of the setpoint (50% in the preferred embodiment), an alarm may be raised or operation stopped. Of course this threshold percentage may be varied.

These and other objects and advantages of the invention will appear more fully from the following description made in conjunction with the accompanying drawings wherein like reference characters refer to the same or similar parts throughout the several views.

BRIEF DESCRIPTION OF DRAWINGS

Figure 1 is an isometric view of the front of the proportioner of the instant invention.

Figure 2 is an isometric view of the rear of the proportioner of the instant
5 invention.

BEST MODE FOR CARRYING OUT THE INVENTION

The proportioner of the instant invention, generally designated 10, is shown in Figures 1 and 2. Towards this end, the proportioner 10 has a variable speed controlled DC
10 motor 12 having a gearbox 14 and crankshaft 16 at either end which are connected to reciprocating piston pumps 18. Such motors, gearboxes and cranks are well known for use in electrically powered airless paint sprayers such as those sold by the assignee of the instant invention under the trademark ULTRA. The outputs 18a of the two pumps 18 are fed to heaters 20 and thence to a manifold 22 where the pressure of each output is
15 measured by pressure sensors 24.

The user sets a setpoint pressure (e.g. 1000 psi) and the controller 26 then compares the pressures of the two components and controls the higher of the two relative to the setpoint. The DC motor control is of the type shown in US Patent No. 4,397,610, the contents of which are hereby incorporated by record.

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10 embodiment), an alarm may be raised or operation stopped.

It is contemplated that various changes and modifications may be made to the proportioner without departing from the spirit and scope of the invention as defined by the following claims.